6-9: Complex Numbers

Warm-up: Simplify.

1. $\sqrt{-144}$ 2. $x^2 = -196$ 3. $\sqrt{-9} \bullet \sqrt{-9}$

Complex number:

Equal complex numbers:

All real number postulates work for complex numbers, too (except for with inequalities).

Quick Question: What are the two parts of a complex number?

Example 1: Simplify.
$(7 + 3i) + (6 + 2i)$

When adding (or subtracting) complex numbers, add the real parts, then add the imaginary parts!

Example 2: Simplify.
$3i(5 + 6i)$

Example 3: Simplify.
$(4 - 3i)(2 + 5i)$

Complex Conjugate:

Example 4: What is the complex conjugate of:

a. $7 + 4i$

b. $13 - 6i$

c. $242 + 74i$

Example 5: Simplify.

$$\frac{2 - i}{3 + 5i}$$

Question: Why do we need the complex conjugate?

Homework:

"Change happens by listening and then starting a dialogue with the people who are doing something you don't believe is right." - Jane Goodall